Commissioner for Patents

gas refrigerant is condensed at least partially to a liquid state to then reach an expansion stage, wherein said high pressure liquid refrigerant is expanded to a low pressure liquid state to then reach an evaporator stage, wherein said low pressure liquid refrigerant is evaporated at least partially to a low pressure gas state by absorbing heat, to then return to said compressing stage, said condensing stage having at least a pair of stand-alone condensing stage closed loops in heat exchange relation with said main refrigeration circuit, said stand-alone condensing stage loops being parallel one to another and each comprising a second refrigerant circulating between at heat absorption stage, wherein said least a refrigerant absorbs heat from said first refrigerant in said main refrigeration circuit so as to condense said first refrigerant to said liquid state, and a heat release stage, wherein said second refrigerant releases absorbed heat, said condensing stage having modulating valve means for selectively and quantitatively modulating the temperature of said first refrigerant and compressor head pressure as a function of at least one of an outdoor temperature and an indoor ambient temperature.

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- The refrigeration system according to claim 11, 12. wherein said second refrigerant is one of ethylic acetate, sulfuric acid, ammoniac, calcium chloride, acetic acid, hydrogen chloride, methylene chloride, sodium chloride, vinyl chloride, carbon dioxide, ethanol, ethylene glycol, formiate, potassium formiate, iso-butane, acetate Pekasol 50, propane, propylene glycol, toluene, trichloroethylene.
- 13. The refrigeration system according to claim 11, wherein said heat exchange relation between said main





refrigeration circuit and said condensing stage closed loops is achieved by plate heat exchangers.

- 14. The refrigeration system according to claim 11, wherein said heat release stage of a first of said closed loops comprises at least one of a heat reclaim coil and a heating unit, and a second one of said closed loops comprises an evaporative condenser.
- 15. The refrigeration system according to claim 14, wherein said heat release stage of said first of said closed loops comprises valves to selectively chose flow of said second refrigerant through at least one of said heat reclaim coil and said heating unit.
- 16. The refrigeration system according to claim 11, wherein absorbed heat from said second refrigerant in said heat release stage is released by at least one of being evacuated outdoors, heating water and heating air.
- 17. The refrigeration system according to claim 16, further comprising valves for selecting the releasing of said absorbed heat from said second refrigerant in said heat release stage.
- 18. The refrigeration system according to claim 11, further comprising an absorbed heat reservoir downstream from said heat absorption stage in said first of said closed loops, wherein said second refrigerant is accumulated prior to being fed to said heat release stage.
- 19. The refrigeration system according to claim 11, wherein said modulating valve means comprises at least a valve for selectively and quantitatively directing flow of



